

ABSTRACT

The present invention relates to high quality composite materials from fibrous materials, in which the composite incorporates a polymer matrix embedding individual fibers. The matrix is derived from polymer particles which penetrate into a strand and substantially fill gaps between individual fibers. Such penetration can occur by exposing the strand to a stable emulsion of the polymer particles. The invention also relates to novel composite structures which incorporation of various types of fibrous segments. These composite structures allow the use of inexpensive and readily available scrap materials. The composites of the present invention are lightweight materials displaying enhanced strength and durability.